Prehistoric Subsistence and Economy in Korea: An Initial Sketch

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PALAEOENVIRONMENTAL data are not abundant for Korea. However, a number of sketches can be attempted, in the hope that team research by archaeologists and other specialists can flesh out aspects of these problems.

The modern vegetation of Korea can be divided into five zones (see Fig. 1), from south to north, comprising (1) evergreen broadleaf forest of evergreen oaks, schima, and laurels, (2) mixed mesophytic forest, (3) deciduous broadleaved forest predominated by deciduous oaks, (4) mixed northern hardwoods predominated by birch, and (5) montane coniferous forests (Wang 1961). The latter zone, predominantly in areas of high elevation, is of little direct influence in man-land relationships. The detailed structure of the vegetation of the first zone, as exemplified by Ullung-do (which is probably an atypical case) and Sohuksando, is available in recent studies (Chung and Hong 1954; B. K. Park 1972). The second zone may be represented by the type locale at Chiri studied by Kim (C. M. Kim 1968), in which *Pinus densiflora, Quercus mongolica, Carpinus laxifolia, Acer mono,* and *Magnolia verecunda* are present and *Thea sinensis* appears as a shrub under the camellias. At Kwangnung, near Seoul, and at Kaya the main species appear to be pine, oak, and maple, in addition to chestnuts *(Castanea crenata)*. It may well be that scattered, stunted red pines found throughout areas around Seoul, for instance, are indications of man-made forests in which the "climax" deciduous species have long been removed. The most northern forest types, the mixed northern hardwood forest and the montane coniferous forests, can be seen in Hokkaido and northerly Tohoku, Japan, the northern portions of the Korean peninsula being inaccessible to most of us.

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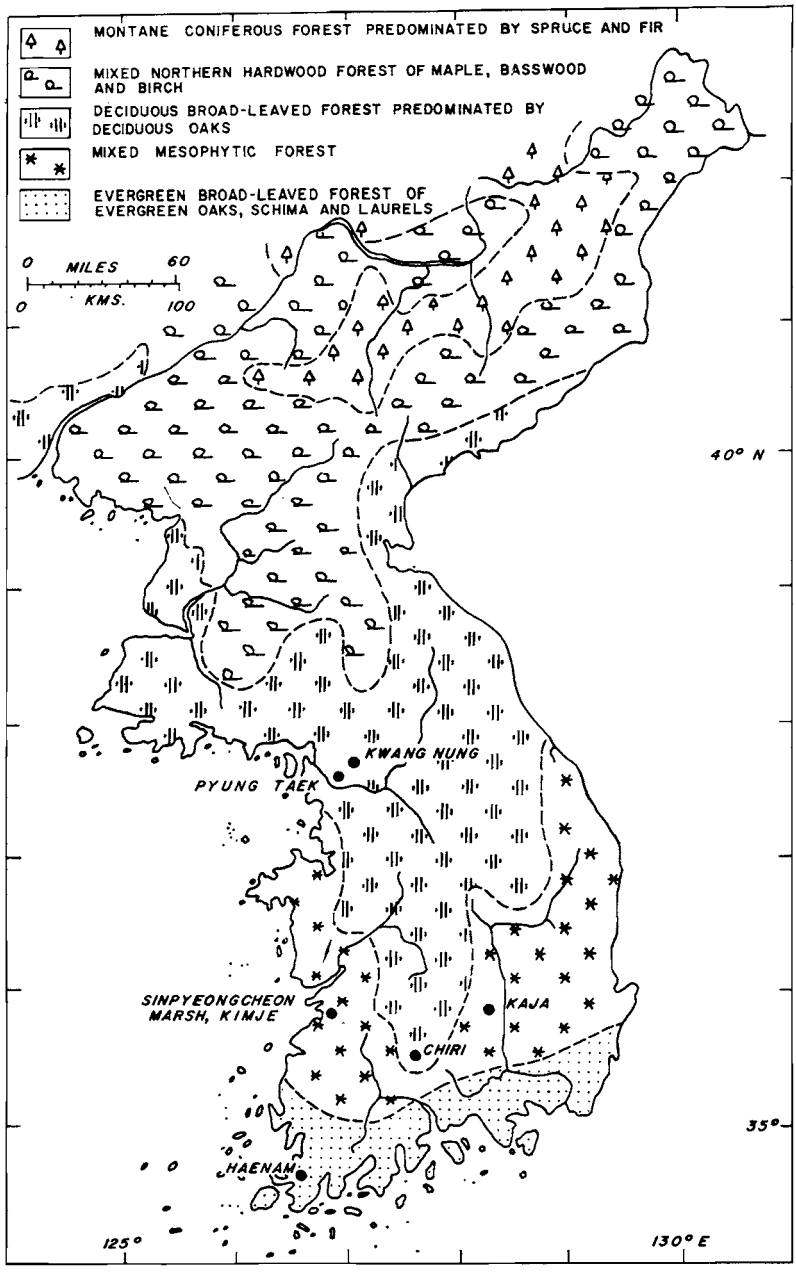

Fig. 1 Vegetation zones of Korea (from Wang 1961) and locations of palaeoenvironmental explorations mentioned in the text.

Within each of these zones, particular kinds of seeds, roots, shoots, berries, and animals were available to the inhabitants, and within each, the pattern of change to cultivated crops may have been different. Many of the aspects of the prehistoric economy can be known through innovative excavation techniques, analogy with

modern groups in the same area and with contemporary hunters and gatherers in similar regions, and detailed ecological analysis of the present resources (see Watanabe 1973).

In the course of human settlement in Korea the vegetation zones outlined above have undergone many changes both natural and man-made, and the effect of man on his environment forms part of the archaeological record. Palynology is one of the best ways of detecting changes in vegetation patterns in prehistory. Oh (1971) has studied the peat sediments of Yongdu-ri, Pyung Taek County, Kyonggi Province, about 100 km southwest of Seoul. In this area, the current vegetation is ten-year-old *Pinus,* bush clover, oak, and *Alnus.* The 110-cm-deep peat deposit is thought to be about 3000 years old, from estimations based on a constant rate of accumulation. The major pollen types are arboreal—*Alnus, Abies, Ligustrum, Viburnum,* and *Carpinus. Pinus* and *Abies* are found to increase from the bottom to the top of the peat deposit, while *Ligustrum, Quercus,* and *Tilia* decrease proportionately. On the basis of the increase of *Pinus* and *Abies,* Oh (1971: 30) suggests that the past climate of the area was cool and moist. Another hypothesis, not considered by Oh, is that the increase reflects an increase in secondary vegetation which proliferated with human cutting and burning. Certainly anthropogenic factors cannot be ruled out.

At present there are no other pollen analyses from Korea of which I am aware. One is tempted, therefore, to search for trends by trying to extrapolate from the abundant Japanese literature on the subject. Using data collected from bogs in central Japan, Tsukada constructed a general pollen diagram (1967). He divides the last 12,000 years into pine boreal (before 10,500 B.P.), boreal oak (10,500 to 9,500 B.P.), temperate (9500 to 4500 B.P.), temperate boreal (4500 to 1500 B.P.), and pine-nonboreal (after 1500 B.P.). This suggests that vegetation zones in Korea, if they follow the pattern of Japan, fluctuated northward from 7500 B.C. to 2500 B.C., after which followed a cooler period that came at the end of the Comb Pattern Pottery Culture. One can see the same trend in the Ussuri-Amur region, where it appears that warm climate began later and persisted somewhat later (Chang 1968: 34). Of course, it is extremely risky to make such long-range comparisons in the absence of detailed knowledge of local conditions and plant communities. There can be no substitute for detailed studies within Korea itself.

During the post-Pleistocene climatic optimum, it appears that most of the sites within the southern half of the peninsula would have been situated in an environment of evergreen oaks, schima, and laurels, which would have yielded a variety of rich resources similar to those available to the Middle Jomon people of central Japan. Although the boundaries between various vegetation zones are still to be worked out, unquestionably ecological diversity existed between sites in various parts of the country. This diversity has not yet become a topic of research in archaeological studies.

Also significant in the consideration of the environment are changes in sea level. For the west coast, Park has calculated the rates of submergence at Sinpyeongcheon Marsh, Kimje, at 0.426 mm per year for the last 4000 years (constituting a total of about 1.7 m), and before that time, at least 1.4 mm per year extending back for at least 2700 years (Y. A. Park 1971).

Another aspect of great importance for the archaeologist is the study of faunal

remains. The reader is referred to two untranslated papers (which I have not read) by Shin-kyu Kim (1962, 1966) for detailed faunal analysis of sites in the north, and to L. Sample's Ph.D. dissertation (1967) for faunal analysis from Tongsam-dong in the south (see below).

What general statements can be made about Korea's prehistoric past, from the level of current archaeology? (See Fig. 2.)

The earliest inhabitants, as documented from Kulp'o-ri and Sokchang-ni, were hunters and gatherers. A large number of surveyed sites, particularly in the Han and Kum River valleys, indicate occupation of river terraces. Judging from the radiocarbon dates of Sokchang-ni (Yang 1970), habitation began as early as 30,000 B.C. and likely at least as early as 40,000 B.C. Although we do not have faunal remains from these sites, it appears that hunting and collecting were carried on by small groups of extended families living in semipermanent camps. From stone "effigies" found within the site, fishing is also interpreted as an activity of importance. Tools, ranging from chopper-chopping to finer flake implements, appear to represent a chronological succession at Sokchang-ni; however, they also reflect different kinds of subsistence activities which were undertaken by different individuals or groups in the same habitation, particularly in the later layers on the site. In the upper layers, the most numerous artifacts in relative order of frequency are side scrapers, end scrapers, gravers, and points. In terms of their use, Sohn (1973: 15) has suggested that kitchen tools are the most prevalent, followed by general-purpose tools, and hunting and butchering implements. Sokchang-ni appears to have been a base camp in which a number of activities were carried out. Hunting and butchering tools (consisting of the handaxe, chopper, disc, and point categories) occurred to the west and east of the windbreak, while the highest frequency was inside the entrance of the windbreak, to the southeast of the hearth.

Some of the upper layers of Sokchang-ni may have been inhabited during the relatively warm period before the Fourth (Tali) Glaciation. As yet it seems difficult to determine what kinds of habitations existed during the final glaciation itself, or how Palaeolithic populations are related to those of subsequent periods. These are topics for further research. We do not know the pattern of evolution of subsistence and social organization of the Comb Pattern Pottery Culture. In fact, no clear sequence of sites emerges for any part of Korea with the exception of Pusan; even there, however, there is little agreement among specialists about the sequence of ceramic forms. It is clear that within Korea there was a variety of ecological adaptations within different vegetation zones and to different kinds of resources. In addition, within the later periods, tentative as they are, some kinds of cultivation may have begun.

The lower layers of the Amsa-ri site appear to give us some of the earliest evidence of settlement of the Comb Pattern Pottery Period. The site is located on what is presently a sandy floodplain, about 1 km away from the Han River. There may have originally been as many as 20 pit houses. From excavated examples, they appear to have been about 5 m long with a floor about 50 cm below the original ground surface and a hearth in the center.

In his paper on dwelling sites of the Comb Pattern Pottery Period, Chong-ki Kim draws together observations on Chit'ap-ni, Kungsan, T'osong-ni, and

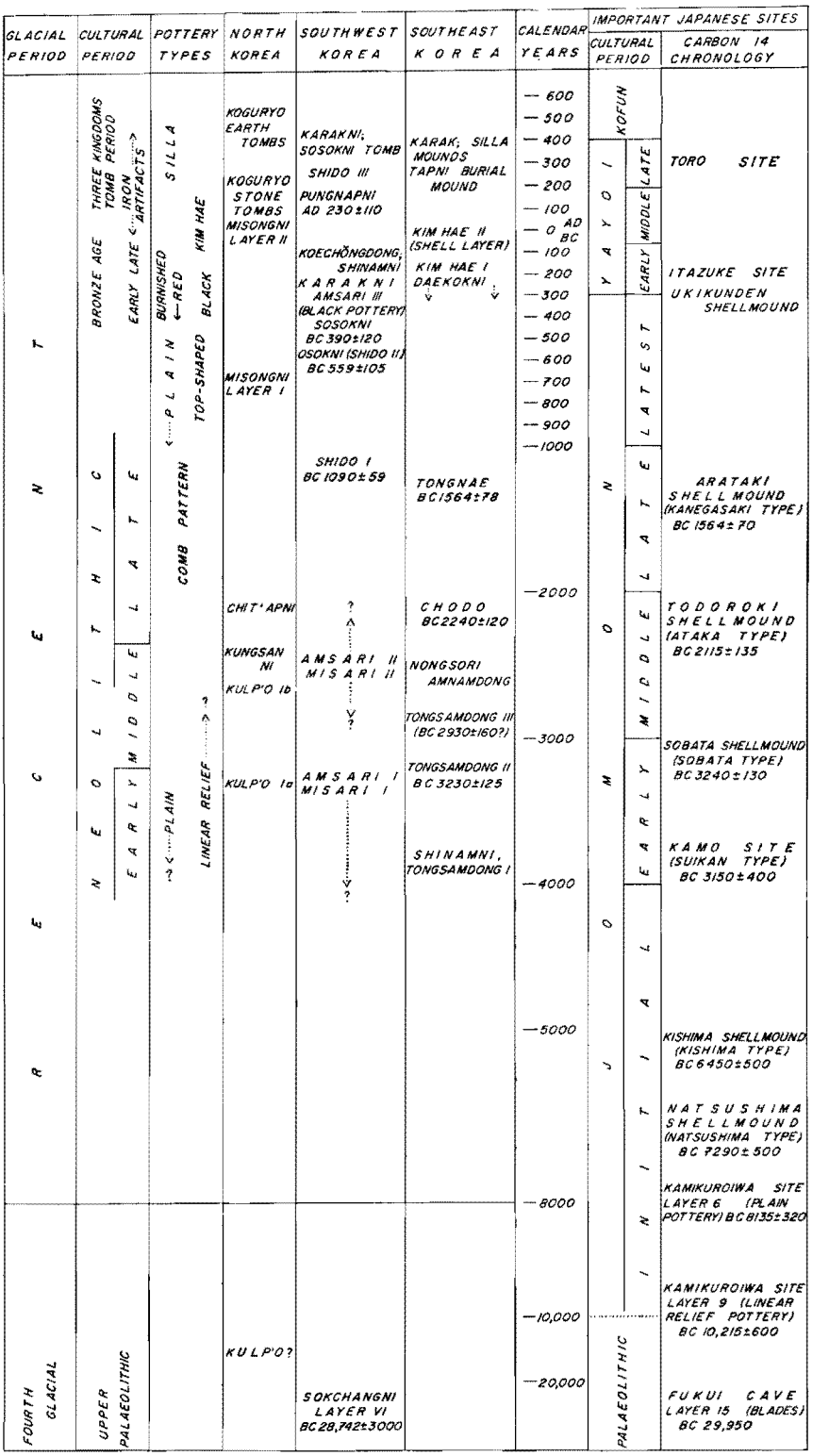

Fig. 2 Chronological chart of Korean prehistory, prepared by Professor Won-yong Kim, Seoul National University.

Sopohang (J. H. Kim 1972: 60–65). To these we can add some information from the Shido Site (Han 1970).

Kungsan, Sopohang, and Shido are situated on the slopes of low hills, while Chit'ap-ni and T'osong-ni extend from flat land onto terrain that is presently terraced. Pit dwellings were dug into sterile soil layers in some cases and into shell or midden deposits in others. There is considerable debate about the sequence of dwelling forms. While it might appear that the round form is older, both round and rectangular forms appear in Kungsan, and at Chit'ap-ni the houses are rectangular. Five to 6 m seems to be an average length, while the depth is about 0.5 m. In many cases the eaves of the roof are thought to have touched the ground, the upper edge of the pit serving as some kind of shelf within the house. This has been suggested from the location of artifacts which appear to lie on the ground surface inside the house at Chit'ap-ni (Dwelling no. 2) (J. H. Kim 1972: 62). The floor of the dwellings appears to have been covered with a layer of clay, or hardened by compacting. All fire pits appear to be in the center of the house, in the cases in which they have been clearly recorded. Steps or a sloping ramp were used for exits and entrances; these are often on the southeast or southwest side, possibly to permit the entry of a maximum of light. Storage pits appear to be excavated into the floor of the houses; in some cases, pottery vessels, buried upside-down with the bottom missing, were used. The pits were in two general locations, either near the hearth or near the wall. Movable storage facilities in jars, particularly of the later flat-bottom type, must have been important. Internal distribution of artifacts in terms of activities does not seem to be clear; however, from Chit'ap-ni Dwelling no. 1, arrowheads, spears, and adzes appear to be nearer the entrance, while querns appear to be away from the entrance, near the hearth on the western side.

From a worldwide sample of cultures, it can be shown that rectangular houses are more common among groups in which an extended family occupies each dwelling; these groups are usually sedentary (Whiting and Ayres 1968). Further investigations of groups structures must wait for more exact, problem-oriented archaeology.

Despite a general lack of concentration on nonartifactual remains, particularly among archaeologists from the Seoul area, we can say a little about the subsistence patterns and economic activities of the Comb Pattern Pottery Culture. In the earliest levels of Tongsam-dong Sample found indications of both land hunting and fishing, despite the sparseness of food remains. Mussels and small snail shells are found, but it is hypothesized that deepwater resources were not used at this time. In the succeeding period, about 4000 B.C., numerous bones of shark, seabream, tuna, and cod are noted in the refuse, and gorges and large compound hooks with barbed bone hook parts and stone and bone shanks are found, indicating that deepwater resources were used. Sea lion bones have also been found (Sample 1967: 248), as well as whale bones, apparently from immature individuals. Corean River Deer, Manchurian Deer, and wild boar are also found. Mussels, sea urchins, and oyster shells are present, about 75 percent of the shellfish remains being mussels. The Pusan Period, dated about 3000 B.C., displays a drop in the amount of mussel shell to 50 or 60 percent, with replacement by oyster and *Turbo*. The *Turbo* lives at depths of 2 to 5 m, and would have required specialized gear and diving. In this period, the composite hooks do not have barbs. Land hunting seems to be more important, the

mammal bone being mostly Manchurian Deer. Sample suggests that farming may have begun at this time as well. Grinding stones make their first appearance in Tongsam-dong in this period (Sample 1967: 254).

It is difficult to generalize widely about the economic patterns of parts of Korea distant from the southern coast. Far more work on environmental reconstruction and subsistence patterns needs to be carried out in other areas. The task is not an easy one, since many sites have very poorly preserved faunal remains.

From the evidence at hand, it appears that the pace of Korean prehistory quickened in the first millennium B.C. with a transition from relatively egalitarian societies to ranked societies in which status was indicated by variation in burial forms and grave goods. In actuality, we have only the burials of the elite, with the possible exception of the cemetery of Simch'ang-ni in the southwest. In their attempts to build a chronology and sort out various ethnic groups in this complex period, Korean archaeologists have seen the pit tomb, dolmen, jar burial, cist coffin, and chamber tomb as products of historical influence or diffusion. We might also ask how these groups were able to support full-time or part-time craftsmen who used the molds or constructed the tombs. Presumably agriculture both in the north and the south had developed to a degree in which local village groups were banded together in ritual and economic exchanges. The upper level of the cave at Misong-ni, near Uiji, North Pyongan Province, gives some clues about changes in subsistence. It can be dated to somewhere around the beginning of the first millennium B.C. As a small cave site, rather than an open-air site, it may not be very representative. Over 50 percent of the animal bones in the upper stratum were deer or pig (Henthorn 1966: 73–78). It has been suggested that the pigs at Misong-ni were in an early stage of domestication, judging from the relative smallness of the submaxillary bone in comparison to other "regular" domesticated pigs (Henthorn 1966: 78).

Several comprehensive attempts have been made to untangle the web of protohistoric ethnic groups, and to relate these to particular artifact sets and burial forms. It has been suggested that the Wei-Mo (or Ye-Maek in Korean) are an important component in the formation of early Korean states and that the typical bronze artifacts of the Liaoning and Korean region were made by them. We need to know more about the Wei-Mo and about other contemporary ethnic groups. One approach for undertaking this difficult task might be the direct historical method, working back from later periods, in circumscribed areas. At this point, we know very little about this period since we are forced to rely so heavily on scattered data from burials, often found in disturbed condition. Although there are large numbers of proveniences given for specific finds, we know little of the common characteristics of their locations, and have no means of dating them satisfactorily. A comprehensive plan of dwelling-site excavation would help enormously. Metallurgical analysis would also be useful.

A critical hiatus in recent fieldwork is the lack of a discussion of the role of the Nangnang (Lolang) Chinese garrison community and the rise of indigenous states, which took place at the end of the first millennium B.C. and in the first few centuries A.D. Of great interest in this period is the development of iron production in the southern part of the peninsula, and the role it played in the formation of small states both within the peninsula and in parts of Japan. The archaeology of the

"Iron Age" Kim Hae Period sites, such as the upper layers at Tongnae, near Pusan, is still poorly known, although the potential contribution of detailed studies of this period to economic history is great. In the area of Karak, in the south, new forms of hard earthenware originated in the first century, the tradition later being transmitted to Silla. Many iron "slabs" (small flat ingots used for trading) and iron artifacts have been found in shell heaps and burial mounds dating to after the first century B.C. Professor Jeong-hak Kim suggests that iron may have been the most important trade item of the Chinese commanderies of Nangnang (Lolang) and Taebang (Taifang), and that it was actually supplied by Pyon Han, or Karak. The Kim Hae Shell Mound itself, first excavated by the Japanese, might well be subjected to further investigation in the light of contemporary problems in archaeology.

The Direction of Korean Archaeology

The data I have presented and discussed are the product of strenuous activity under very trying circumstances within the past two decades. Palaeolithic sites in Korea have been known only for the past decade, and a radiocarbon chronology has only begun to emerge within the past five years. The results are a tribute to very dedicated people. In the coming years, Korean archaeology should grasp the opportunities to move into quantified methods and to initiate detailed palaeo-environmental studies. Resources should be concentrated on developing local studies, such as the National Museum five-year plan for the study of Comb Pattern Pottery sites. Until local chronologies are firm, much of the interesting anthropological interpretation of archaeology cannot be supported. Tracing of historical diffusion before good local studies have been accomplished would seem to be premature, although some focusing on external relationships with well-dated areas such as Kyushu may help in elucidating certain problems. Of particular significance in the next few years will be the examination of patterns within particular dwelling sites, in which wide areas will be opened up, and artifactual and nonartifactual remains carefully sampled and located. A sampling of the available references demonstrates that all of the components for interdisciplinary research can be developed within Korea, or are already functioning. Some of this work has begun already at Sokchang-ni. Greater attention to field recovery and problem orientation should bring Korean archaeology forward.

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